

Solid State Broadband High Power Amplifier

HD29244

5 – 500 MHz / 5 Watts

- Instantaneous ultra broadband
- Small form factor and lightweight
- Suitable for most modulation standards
- 50 ohm input/output impedance
- High reliability and ruggedness



ELECTRICAL SPECIFICATIONS @ +28 VDC, 25°C, 50 Ω System

Parameter	Symbol	Min	Typ	Max	Unit
Operating Frequency	BW	5		500	MHz
Operating Output Power	P _{OUT}	5			Watt
Power Gain @ Rated P _{OUT}	G _P	35			dB
Input Power for Rated P _{OUT}	P _{IN}		+2		dBm
Small Signal Gain Flatness	ΔG		± 1.0	± 1.5	dB
Input Return Loss	S ₁₁			-10	dB
Noise Figure	NF			10	dB
Third Order Intercept Point (27 dBm Per Tone, $\Delta = 100\text{KHz}$)	IP3	+46			dBm
Harmonics @ 5 Watt Output	H		-30		dBc
Spurious Signals	Spur		-70	-60	dBc
Operating Voltage	V _{DC}	26	28	30	Volt
Current Consumption @ 5 Watts	I _{DD}			2.5	Amp
Switching Time	T _{ON} / T _{OFF}			25	mSec

MECHANICAL SPECIFICATIONS

Parameter	Value	Units	Limits
Dimensions	3.5 x 2.5 x 0.85	Inch	Max
Weight	0.5	lb.	Max
RF Connectors In/Out	SMA Female		
DC / Shutdown Connectors	Dsub, 9-Pins, Male		
Cooling	External Heatsink		

ENVIRONMENTAL CHARACTERISTICS

Parameter	Symbol	Min	Typ	Max	Unit
Operating Temperature	T _c	0		+50	°C
Non-operating Temperature	T _{stg}	-40		+85	°C
Relative Humidity (non-condensing)	RH			95	%
Altitude (MIL-STD-810F Method 500.4)	Alt	10,000		30,000	Feet
Shock / Vibration (MIL-STD-810F Method 516.5)	SH / VI		Airborne		

HD Communications Corp.

332-C Dante Court, Holbrook, NY 11741 Phone: 631-588-3877 Fax: 631-648-0518



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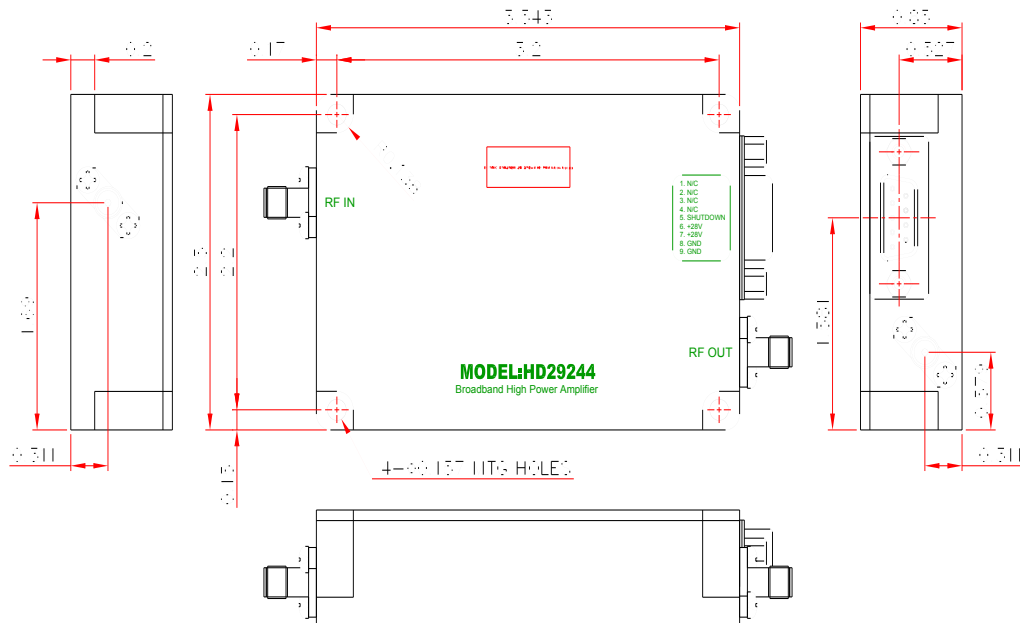
PROTECTIONS

Input Overdrive	+10 dBm	Max
Load VSWR @ rated output power	∞ @ all load phase & amplitude	Nom
Thermal Overload	85°C shutdown	Max

INTERFACE CONNECTOR - D-Sub, 9 Pin

Pin #	Description	Specifications
1	N/C	Reserved
2	N/C	Reserved
3	N/C	Reserved
4	N/C	Reserved
5	Shutdown	Amplifier Enable: TTL "Low" (Logic 0) or Open Amplifier Disable: TTL "High" (Logic 1)
6	VDD	+28 V _{DC} to ± 2 V
7	VDD	+28 V _{DC} to ± 2 V
8	GND	Ground
9	GND	Ground

OUTLINE DRAWING



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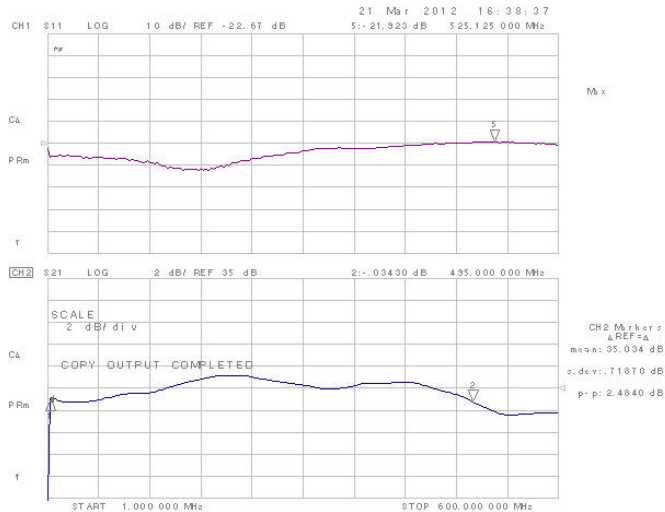
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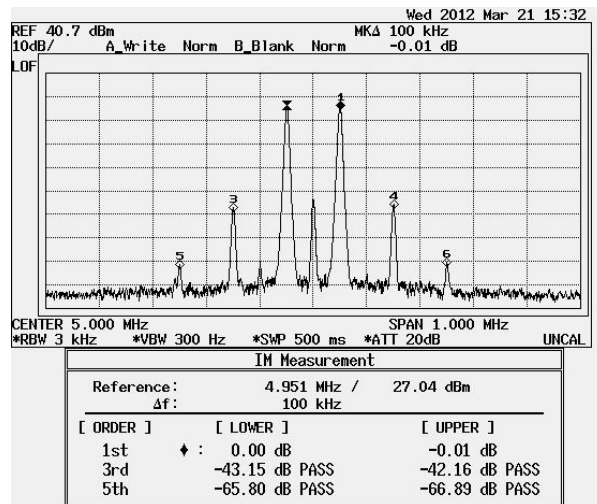
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TYPICAL PERFORMANCE PLOTS

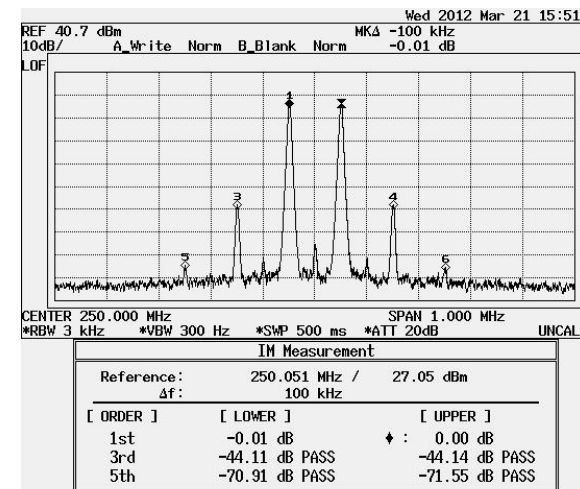
Small Signal Gain Flatness & VSWR



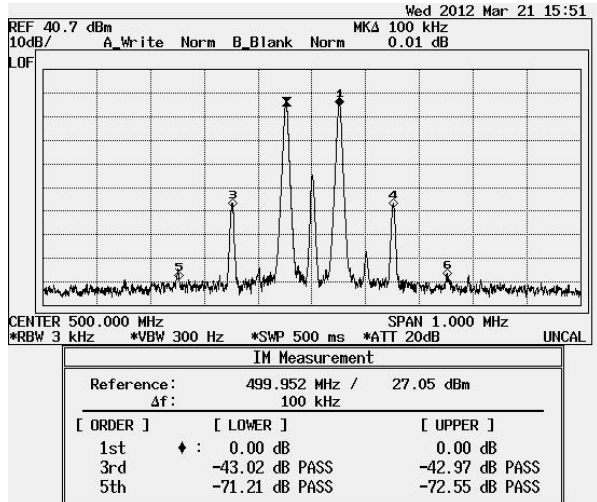
Third Order Intercept Point (27 dBm Per Tone, $\Delta = 100\text{KHz}$)_(Fc 5MHz)



Third Order Intercept Point (27 dBm Per Tone, $\Delta = 100\text{KHz}$)_(Fc 250MHz)



Third Order Intercept Point (27 dBm Per Tone, $\Delta = 100\text{KHz}$)_(Fc 500MHz)





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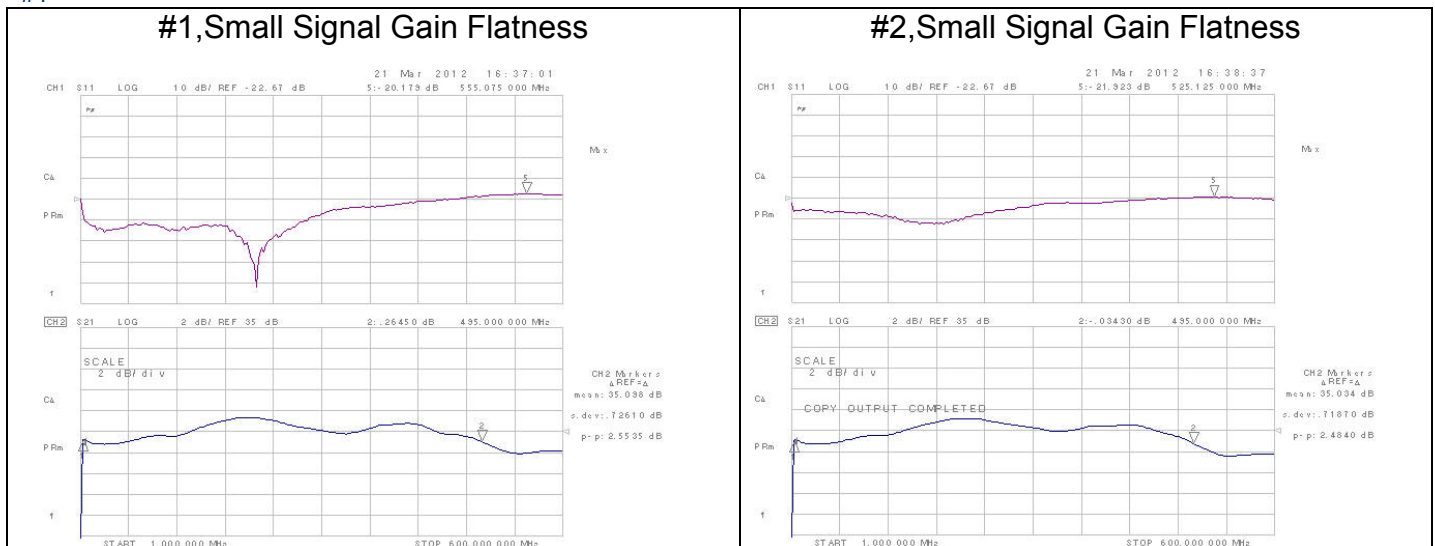
5 – 500 MHz / 5 Watts

SAMPLE Test

ELECTRICAL SPECIFICATIONS @ +28 VDC, 25°C, 50 Ω System

Parameter	Symbol	#1	#2	#3	#4	#5	Unit
Operating Frequency	BW	5 ~ 500					MHz
Operating Output Power	P _{OUT}	5	5	5	-	-	Watt
Power Gain @ Rated P _{OUT}	G _P	35.0	35.1	35.2	-	-	dB
Small Signal Gain Flatness	ΔG	2.5	2.4	2.3	-	-	dB
Input Return Loss	S ₁₁	-20.1	-21	-22.6	-	-	dB
Third Order Intercept Point (27 dBm Per Tone, Δ = 100KHz)	IP3	47.2	48.5	47.8	-	-	dBm
Harmonics @ 5 Watt Output	H	-28.5	-28.4	-28.5	-	-	dBc (5MHz)
Spurious Signals	Spur	-70	-70	-70	-	-	dBc
Operating Voltage	V _{DC}	28	28	28	-	-	Volt
Current Consumption @ 5 Watts	I _{DD}	2.46	2.47	2.48	-	-	Amp

#1



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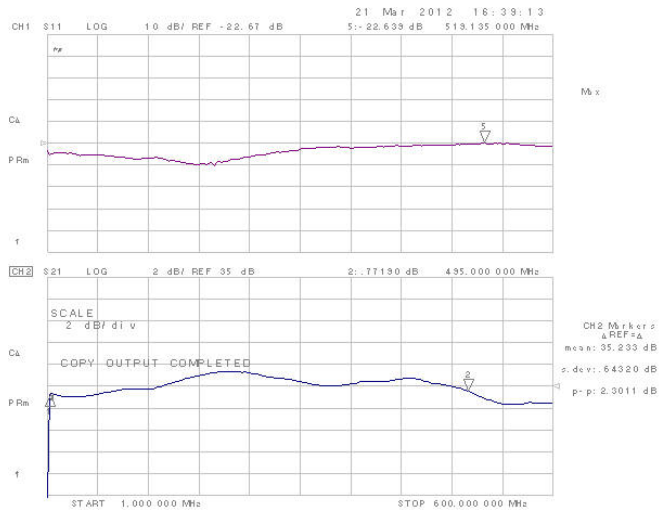
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#3, Small Signal Gain Flatness



#4, Small Signal Gain Flatness

#5, Small Signal Gain Flatness